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INDIANA UNIVERSITY

Some Variations Among the High Schools Represented at Indiana University

by

Nicholas A. Fattu

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SOME VARIATIONS AMONG THE HIGH SCHOOLS REPRESENTED AT INDIANA UNIVERSITY

INTRODUCTION

THE present study is concerned with the nature and extent of certain variations among the Indiana high schools represented at Indiana University. For every high school represented by 10 or more students at the University, the range of variation, the median, and the mean were computed on each of the variables studied. These medians, means, and ranges of the various data have been used as the statistics on which the present investigation is based. Comparisons, therefore, have been made on an inter-institutional and an inter-group basis rather than in terms of individual pupils.

Findings concerned with the extent of institutional variations among Indiana high schools should be useful in showing interested public school administrators how pupils from their respective high schools compare with pupils from similar schools in the state, and in some cases such information may suggest clues to possible action concerning improvement of instruction or curriculum in the high school. For the University counselors, the findings should (1) suggest the prognostic value of certain kinds of information supplied both by high school principals and by the entrance tests; (2) give some indication of the nature and extent of certain institutional variations among students entering the Junior Division, and thus suggest probable kinds of instructional adjustments and possible selection of courses appropriate to the level of development of these young people; and (3) point out those schools whose students' high school and college grades show little disparity as well as those which show considerable deviation in terms of the total group.

This study may be divided into three parts: the first part deals with the extent of variation among high schools in terms of college credit point ratio, rank in high school graduating class, father's education, and mother's education. The second part indicates the relative variability of the high schools on the University entrance examinations. The third part is concerned with the nature of the course work taken by pupils attending the various high schools, and in this connection both grades and number of units are studied.

There were 721 high schools represented at Indiana University during 1946-1947. Five or more students were sent to the University by 277 of these schools, and 10 or more students were sent by 161 schools.

Although the records of all students were studied, detailed investigation was restricted to the high schools sending 10 or more young people to Indiana University, because summary statistics based on fewer than 10 cases would probably be too unstable as a basis for making valid comparisons. However, the schools sending fewer than 10 students were studied collectively and included in the tables as "Group O" for comparative purposes. When the data were tabulated, incom-

plete records were found in eight of the high schools sending 10 or more students, so these were eliminated. Final comparisons were therefore made in terms of 153 schools. While these 153 larger schools constitute only about 20 per cent of the high schools represented at the University, they also represent more than 80 per cent of the students enrolled. The 721 high schools in the state sent 8,182 students, or an average of about 12 from a school, while the 153 larger schools sent 6,217 pupils, or an average in excess of 40 from a school.

Data for the study were obtained from the student certification blanks submitted to the Admissions Office by the high school principal and from the personal data blanks filled out by students during registration. Entrance test scores were obtained from records in the Dean of Students Office, and college grade point ratios were computed from grade sheets printed for the Registrar's Office by the Hollerith tabulator in the Central Statistical Bureau.

Classification. For most of the comparisons, the high schools were grouped into the following categories, according to the population of the center in which they were located:

A. 100,000 or more
B. 50,000 to 100,000
C. 30,000 to 50,000
D. 10,000 to 30,000
E. 5,000 to 10,000
F. 2,500 to 5,000
G. Under 2,500
O. Others (those sending fewer than 10 students to Indiana University)

The number of schools and of students sent from each school is given in Table I. The 153 larger schools comprise the categories "A" to "G" which are studied as separate institutions. Category "O" includes the 560 smaller high schools sending fewer than 10 students to the University. As indicated previously, data for the latter were tabulated and computed for the whole group, but no tabulations or computations were made for individual schools within the group.

TABLE I. NUMBER OF STUDENTS AND SCHOOLS IN EACH OF THE GROUPS

Group	Number of Students	Number of Schools	Average Number of Students per School
A	1,963	25	78
B	637	11	58
C	456	6	76
D	1,647	24	65
E	787	31	25
F	196	21	40
G	531	35	15
O	1,965	560	3
Total	8,182	713	11

High schools included in the various groups are:

Group A

Indianapolis
- Arsenal Technical
- Ben Davis
- Broad Ripple
- Cathedral
- Crispus Attucks
- Emmerich Manual Training
- George Washington
- Park
- Shortridge
- Thomas Carr Howe

South Bend
- Central
- John Adams
- Riley
- Washington

Gary
- Emerson
- Froebel
- Horace Mann
- Lew Wallace
- Roosevelt
- Tolleston

Fort Wayne
- Central
- Catholic Central
- North Side
- South Side

Group B

Evansville
- Bosse
- Central
- Reitz

Hammond
- Catholic Central
- George Rogers Clark
- Hammond

East Chicago
- Roosevelt
- Washington

Terre Haute
- Garfield
- Laboratory School
- Wiley

Group C

Muncie
- Burris
- Central

Anderson
Elkhart
Kokomo
Richmond

Group D

Bedford
Bloomington
- Bloomington
- University

Columbus
Connersville
Crawfordsville
Michigan City
- I. C. Elston
- St. Mary's

Elwood
Frankfort
Goshen
Huntington
Jeffersonville
Lafayette
La Porte
Logansport
Marion
Mishawaka
New Albany
New Castle
Peru
Shelbyville
Vincennes
Whiting

Group E

Auburn
Bicknell
- Central

Bluffton
Brazil
Clinton
Decatur
- Central
- Decatur

Franklin
Greensburg
Hartford City

Group E, Continued

Hobart
- Main Building

Jasper
Kendallville
Lebanon
Linton-Stockton
Madison
Martinsville
Mount Vernon
Noblesville
Plymouth
Portland
Princeton
Rushville
Seymour
Sullivan
Tell City
Tipton
Valparaiso
Wabash
Warsaw
Washington
- Daviess County

West Lafayette
Winchester

Group F

Alexandria
Angola
Attica
Aurora
Beech Grove
Boonville
Columbia City
Crown Point
Garrett
Greencastle
Greenfield
Huntingburg
Mitchell
Monticello
North Vernon
Oakland City
Petersburg
Rensselaer
Rochester
Salem

Group F, Continued

Southport
Marion County
Union City

Group G

Albion
Argos
Bloomfield
Boswell
Chesterton
Corydon
Covington-Troy Township
Culver
Culver Military

Group G, Continued

Delphi
Ellettsville
Elmhurst
Fowler
French Lick
Greenwood
Hagerstown
Kentland
Kirklin
Knightstown
Knox
Loogootee
Lowell District
Milan
Milroy

Group G, Continued

Mooresville
Nashville
Orleans
Paoli
Plainfield
Rockport
Rockville
Rolling Prairie
Scottsburg
Smithville
Speedway City
Spencer
Union County
Liberty-Center

Geographical Distribution. In examining the list of the 153 larger high schools, the question arises as to whether all parts of the state are equally represented by students at the University. Similar studies made in Maryland and Minnesota indicate that high schools immediately adjacent to the University were decidedly better served than those farther away.

The geographical distribution of the Indiana schools may be seen in Figure 1. The area within easy commuting distance of the University, about 20 miles, contributes a relatively larger proportion of students than does the rest of the state. This area, however, is characterized by a relatively lower concentration of population than prevails in most other parts of the state, so that the total number of students involved is relatively small. Taken as a whole, the various geographical divisions of the state contribute to University attendance roughly in direct proportion to their respective populations. In passing, it may be observed that Indiana University appears to serve the various parts of its state more uniformly than the Maryland and Minnesota studies have indicated to be the case in their states.

Detailed Findings. The detailed findings on all phases of this study are presented in Table A in the Appendix, which describes the variations among the 153 high schools represented at Indiana University by 10 or more young people.[1] For each institution represented, the mean on each of the various measures is indicated. Any school administrator who is interested may get the code number for his school by writing to the Division of Research and Field Services at Indiana University.

A detailed table such as this one is difficult to read and interpret. In order to facilitate its comprehension the following tables and discussion are presented.

---

[1] Tests of significance, t, F, and chi-square, were computed in the instances where they were appropriate. Results of these tests are summarized in the discussion of the various tables derived from Table A, instead of being considered separately in detail.

Geographical Distribution of Indiana High Schools Sending Ten or More Students to Indiana University

COLLEGE GRADES, HIGH SCHOOL RANK, AND PARENTS' EDUCATION

This part of the study deals with the extent of variation among high schools in college grades earned during the first year at Indiana University, rank in high school graduating class, and father's and mother's education. The comparisons were made among the eight groups previously described—A, B, C, D, E, F, G, and O. Answers to several questions should be suggested by these data.

1. Did the students attending Indiana University rank in the upper half of their high school graduating class and did those from the larger high schools tend to come from the upper half of the class more frequently than did those from the smaller high schools?
2. Did students from the larger high schools tend to earn higher college grades than those from the smaller?
3. What was the level of education of the parents of Indiana University students; and how does it compare with that of the general population in the local community?
4. What were the institutional interrelationships between college grades and high school rank?

The first question is of interest because the University Catalog says, concerning admission of high school graduates: "All graduates of Indiana commissioned high schools who come directly from secondary schools and are in the upper 50 per cent of their respective graduating classes, and all graduate veterans will be admitted to the Junior Division on certification by their high school principals. Those in the lower 50 per cent, except veterans, are required to come to the campus for conferences and guidance before they are admitted." The probable implication of this regulation may seem to be to exert a selective infuence with reference to high school rank of the entering students. The extent of this influence is indicated in Table II.

TABLE II. DISTRIBUTION OF HIGH SCHOOL RANK OF STUDENTS

Group	Range	Median	Mean
A	38-71	54	55
B	20-68	52	52
C	54-65	60	59
D	38-71	54	54
E	32-80	56	58
F	10-78	54	54
G	30-87	60	60
O	—	—	63

To be sure, all the medians reported were above 50, and that of the total group was 55. This, however, is only five units higher than would be expected if all high school graduates, without any selection whatever as to high school rank, attended Indiana University. This fact is further emphasized by observing the ranges of the ranks. Only Group C consistently sent pupils from the top half of the graduating class; all the other groups sent pupils from the entire range. There

was no tendency observable for larger schools to send more students from the upper half of the graduating class. In fact, the two Groups, G and O, representing the smallest schools, had the highest means.

The present data suggest that the regulation given in the University Catalog does not actually have more than trivial selective effect in practice. College freshmen at the University are selected, if at all, in terms of some factor other than rank in graduating class.

Data relative to the second question are presented in Table III. The median grade of the entire group was above 1.00[2] in all instances, but the ranges of scores suggested considerable departure, up and down, from these medians. Since the college freshman group was only slightly selected in terms of high school rank, one would expect the median to be near the average, that is, if the typical average high school graduate could earn a "C," or 1.00, average, then the medians reported here would be typical of the kind of students received.

TABLE III. DISTRIBUTION OF COLLEGE GRADES OF STUDENTS FROM VARIOUS HIGH SCHOOLS

Group	Range	Median	Mean
A	0.58-1.56	1.10	1.09
B	0.90-1.64	1.06	1.12
C	0.90-1.68	1.15	1.22
D	0.06-1.45	1.04	1.06
E	0.48-1.74	1.17	1.12
F	0.06-1.70	1.10	1.02
G	-0.25-1.62	1.10	1.04
O	—	—	1.17

Again the reader is reminded that these are institutional, not individual, statistics. For example, students from the poorest high school as a group earned a college grade point average of -0.25, which is between a "D" and "F." The schools earning a grade point average below 1.00 would be barred from further attendance for at least one semester if they were individual pupils. It probably would be profitable both to the high school concerned and to the University to inquire into those schools whose institutional averages were below the range 0.90 to 1.00.

Table IV gives data on the father's and mother's education. Although the level of education of fathers exceeds that of mothers, the difference can hardly be considered significant. The range of educational attainment varies from an average of 6.5 grades for the lowest average number of grades completed, to college graduate for the highest school average.

[2] Credit point ratio is computed as follows: an "A" carries three honor points per credit, a "B" carries two, a "C" carries one, a "D" carries none, and an "F" carries a minus one. An average of "C" or above is required to stay in the University.

TABLE IV. EDUCATION OF FATHERS AND MOTHERS OF STUDENTS AT INDIANA UNIVERSITY (EXPRESSED IN TERMS OF LAST GRADE COMPLETED)

Education of Parents	Range	Median	Mean
GROUP A			
Father	8.1-16.1	12.1	11.9
Mother	7.5-16.0	11.5	11.3
General population*	8.4- 9.0	—	8.8
GROUP B			
Father	9.3-14.0	10.9	11.1
Mother	8.9-12.7	11.3	11.3
General population	7.6- 8.7	—	8.4
GROUP C			
Father	10.2-15.0	12.5	12.9
Mother	10.1-12.1	11.9	11.5
General population	8.6- 8.9	—	8.8
GROUP D			
Father	8.0-15.3	11.5	11.7
Mother	6.5-15.3	11.5	11.5
General population	8.1- 9.5	—	8.6
GROUP E			
Father	7.5-15.8	11.4	11.6
Mother	7.2-13.5	11.7	11.7
General population	8.0-12.9	—	8.7
GROUP F			
Father	8.0-15.4	11.6	11.5
Mother	9.1-13.5	11.5	11.5
General population	7.1-12.0	—	8.7
GROUP G			
Father	7.5-15.7	11.9	11.3
Mother	6.8-14.9	11.5	12.9
General population	7.8- 8.9	—	—
GROUP O			
Father	—	—	11.9
Mother	—	—	11.5
General population	7.1-12.9	—	8.6

* Refers to the 1940 Census data for Indiana.

The United States 1940 Census data concerning the amount of education of adults in the towns in which these schools were located are given for each group. The range is from 7.1 to 12.9, with the mean of the whole state located at 8.6. Parents of the young people attending Indiana University thus had attained an educational level about three years above that of the general population in Indiana.

Analysis of variance of college grades revealed an F ratio of 6.53 for the comparison of "between high schools" with "within schools" mean squares; and an F ratio of 5.47 for the comparison of "between groups" with "within groups." Both of these were significant at the one per cent level. In the case of high school rank, however, both F ratios, 1.98 and 1.42 respectively, were not significant. Thus, random sampling variations could readily account for whatever differences

were observed in high school rank, as for example in Table II. Such was distinctly not the case in terms of the college grades of these same young people. Since some high schools prepare their students more adequately for college than do others, it becomes necessary to investigate the relationship between high school rank and college grades in greater detail. A regression equation will be derived to permit counselors to adjust the high school rank of students from the various schools and thus increase the accuracy of prediction of college achievement.

Table V indicates that the institutional correlation between rank in the high school graduating class and first year college grades is 0.35. The table, and the regression equation given below it, may be used by University counselors for obtaining prognostic information in two types of situations: (1) in the case of a student from a particular high school who enters with an incomplete record; that is, whose high school rank is not available; and (2) in the case of a student who enters with a complete record.

The first case is handled by using the institutional mean, which is adjusted either by using the regression equation or by using the table directly. To use the regression equation, the institutional mean of high school rank is substituted for x, and the value of y is then computed. By using the institutional adjustment for high school rank in predicting a student's college grades, one could increase the accuracy of prediction of a particular student's college grades by at least one third; e.g., the variance due to factors other than regression is decreased by more than one third.

The second case is handled by using two steps. First, the institutional mean is corrected as indicated for the first case. Then this corrected value is substituted in the regression equation used for predicting individual grades. This regression equation for predicting individual standing in college is the one used by the Counseling Office and the Junior Division at Indiana University. In this second case the accuracy of individual prognosis is also improved by approximately one third.

Another entry given below Table V is the SE_{est}. For the institutional regression equation this will indicate the extent of error in the predictions; that is, it will show the amount of disparity to be expected between actual and predicted grades, and thus indicate the confidence that can be placed upon the institutional prediction.

In Tables II to V the evidence indicates that:

1. The Indiana University college freshmen studied were a typical cross-section of the high school graduates of the state.

2. The typical college grades of the various schools (1.05) was close to a "C" average.

3. The educational attainment of parents of Indiana University students was about three school grades above that of the general Indiana population.

4. No real differences were found in high school rank among the various schools, but there were distinct differences in their level of college achievement. The specific relationship between high school rank and college grades was described in detail.

TABLE V. JOINT DISTRIBUTION OF INSTITUTIONAL HIGH SCHOOL RANKS AND COLLEGE GRADE POINTS EXPRESSED AS INSTITUTIONAL HIGH SCHOOL AVERAGES

High School Rank	College Grade Point Average																
	.20 and below	.21 - .30	.31 - .40	.41 - .50	.51 - .60	.61 - .70	.71 - .80	.81 - .90	.91 - 1.00	1.01 - 1.10	1.11 - 1.20	1.21 - 1.30	1.31 - 1.40	1.41 - 1.50	1.51 - 1.60	1.61 - 1.70	1.71 - 1.80	Total
86 - 90									1									1
81 - 85																		0
76 - 80				1		1						2	1		1	2		8
71 - 75					1					3	2		1			1		8
66 - 70				1			1			2	2	2	2	1	2			13
61 - 65						1	1	2		2	2	3	5		1	1		18
56 - 60		1			1	2		1	5	5	3	2	2	1	1	3	1	28
51 - 55	1		1			1	3	2	8	4	4	2	3	3				32
46 - 50	1		1			1	1	6	2	5	3	2	1	3				26
41 - 45							1	1	3	1				1				7
36 - 40						1	1	1	1	1	1	2						8
31 - 35											1							1
26 - 30							1											1
21 - 25																		0
16 - 20								1										1
11 - 15																		0
6 - 10				1														1
Total	2	1	2	3	2	7	9	14	20	23	18	15	15	9	5	7	1	153

x = College grade point average

y = High school rank

$\bar{x} = 1.08, \quad \bar{y} = 49.1$

$S_x = 0.32, \quad S_y = 10.2$

$r = .35$

$x = .01y + .59$

$SE_{est} = 0.30$

ENTRANCE EXAMINATIONS DATA

The second part of the study compares the relative variability of the different high schools in terms of the percentile ranks achieved by their graduates at the University. In addition, data are presented relative to the question: How do institutional and individual variations compare?

On the Cooperative English Test C1, which is a reading test, the following observations are justified by the data shown in Table VI:

1. The average "Vocabulary" scores of students from the best ranking schools were almost six times larger than those from the poorest schools.
2. The averages on the "Speed" and the "Level" part scores were about five times larger in the best schools than in the poorest.
3. On the "Total" scores the average for the best school was about five times greater than for the poorest.
4. In all instances the medians were very close to the 50 mark.
5. By inspection of Tables VI and Table A in the Appendix it appears that there was no significant correlation between size of school, educational level of parents, and scores on the Cooperative English Test C1 and, when computed, none was found.

The analysis of variance of the data indicated that the variation within institutions was greater than that between schools on every one of these measures, and that the variation between schools within a group was greater than the variation between groups. No significant difference was discovered between individual variations within a school, and institutional variations.

Table VII gives data relative to the California Mental Maturity Test. On the two subtests as well as on the total test the average score of students from the best schools was between one and a half and four times larger than that of students from the poorest schools.

The medians further indicate that either the published test norms were too low for the group, or the test was too easy for Indiana University freshmen. In either case, a median of 70 or more on the percentile ranks seems too high for adequate separation of the individuals in the top half of the freshman class. The analysis of variance indicated that the variation within a school was greater than that between schools and the variation between schools within a group was greater than that between groups.

TABLE VI. DISTRIBUTION OF PART SCORES AND TOTAL SCORES ON THE COOPERATIVE ENGLISH TEST C1 (EXPRESSED IN TERMS OF PERCENTILE RANKS)

Test	Range	Median	Mean
GROUP A			
Vocabulary	22-79	52	51
Speed	19-82	48	47
Level	22-68	51	48
Total	19-75	49	58
GROUP B			
Vocabulary	47-69	53	54
Speed	41-59	50	59
Level	46-68	51	53
Total	43-65	50	51
GROUP C			
Vocabulary	52-87	56	60
Speed	46-75	48	46
Level	45-76	55	57
Total	46-86	53	58
GROUP D			
Vocabulary	39-72	54	55
Speed	29-75	45	46
Level	33-66	48	49
Total	39-62	48	49
GROUP E			
Vocabulary	24-72	50	51
Speed	26-98	48	48
Level	24-94	49	49
Total	26-61	47	48
GROUP F			
Vocabulary	25-75	53	50
Speed	27-69	46	46
Level	31-72	48	48
Total	26-65	45	47
GROUP G			
Vocabulary	15-73	55	50
Speed	24-78	50	48
Level	22-71	49	49
Total	25-73	51	49
GROUP O			
Vocabulary	—	—	57
Speed	—	—	52
Level	—	—	55
Total	—	—	54

TABLE VII. DISTRIBUTION OF PART SCORES AND TOTAL SCORES ON THE CALIFORNIA MENTAL MATURITY TEST (EXPRESSED IN TERMS OF PERCENTILE RANKS OF 1945-1946 NORMS)

Test	Range	Median	Mean
GROUP A			
Non-Language	24-88	59	64
Language	41-86	69	62
Total	38-89	67	63
GROUP B			
Non-Language	49-76	70	66
Language	60-86	69	70
Total	59-88	73	71
GROUP C			
Non-Language	46-68	59	58
Language	63-84	72	74
Total	61-82	69	75
GROUP D			
Non-Language	48-71	62	61
Language	57-81	71	70
Total	55-80	70	69
GROUP E			
Non-Language	34-88	61	60
Language	45-91	71	71
Total	41-92	71	69
GROUP F			
Non-Language	33-81	55	54
Language	27-93	72	67
Total	26-94	67	64
GROUP G			
Non-Language	23-86	59	59
Language	28-90	72	69
Total	20-88	70	68
GROUP O			
Non-Language	—	—	60
Language	—	—	77
Total	—	—	74

The most important finding with reference to test scores was the extent of variation among and within the schools. The best ones had median scores four to six times larger than those of the poorest schools. In their respective analyses both the variations of pupils within a school and those of schools within a group were significant, the latter being about three fourths as large as the former. Although institutional intercorrelations were computed on these test scores, they were not significant and hence are omitted from the present discussion.

GRADES AND CREDITS IN HIGH SCHOOL COURSES

The third part of the study indicates the nature of the high school preparation of the students at Indiana University. High school grades and number of credits earned are separately compared in each of the

following six areas: English, mathematics, foreign language, history and social studies, science, and miscellaneous courses. The first five areas listed may be regarded as the academic or college preparatory courses, while the last area contains the vocational and "practical" courses—home economics, industrial and manual arts, agriculture, music, art, etc. Data relative to several questions may be considered:

1. Do high school grades in foreign language, mathematics, and science tend to be lower than those in the other areas?
2. Does the variation in high school grades bear any relation to the size of the school?
3. In a required course, such as English, do pupils tend to take additional work beyond the required minimum?
4. Did the schools whose graduates had more high school foreign language, mathematics, and science exhibit higher college grades than those whose high school preparation emphasized history and social studies?
5. Did the students with college grades above the median get higher grades in any subjects in high school?

Data relative to the first question are summarized in Table VIII, which compares grades made in the different high school subjects when the high schools were classified into the various population groupings. The highest median grade in any group was the 89 of Group A in science, but with this exception noted, foreign language grades were consistently the highest in any subject for all the groups. Grades in the miscellaneous subjects showed the greatest range of variation. The variations among the rest of the grades and the rest of the groups were trivial. A test of significance indicates that the differences noted are more apparent than real. High school grades in foreign language, mathematics, and science ran consistently higher than those in history and social studies, English, and the miscellaneous courses, but the differences are hardly to be regarded as significant.

The second question is also answered in general by Table VIII and in detail by Table A in the Appendix. Inspection revealed no apparent association, and tests of significance of the correlation coefficients showed that none was significantly different from zero.

In order to answer the third question it is necessary to know what is required for high school graduation in Indiana. Among the 16 units required are three units of English, one unit of United States history, one unit of government, and one unit of health and safety. The extended table in the Appendix indicates that all of the individual schools met these requirements, but very few went a great deal beyond them. In terms of the medians summarized in Table VIII, the greatest amount of work was taken in English and the least in science. The most striking feature, however, is the extent of uniformity, almost rigidity, of the high school curricular pattern in the schools throughout the state.

The fourth question cannot be given adequate consideration because of the relatively small range of variation in credits among the various schools.

In reference to the fifth question it was found that schools whose students ranked above the median in college grades tended to exhibit

TABLE VIII. DISTRIBUTION OF HIGH SCHOOL GRADES AND CREDITS FOR STUDENTS AT INDIANA UNIVERSITY

Group	Grades			Credits		
	Range	Median	Mean	Range	Median	Mean
ENGLISH						
A	66 - 92	78	79	2.0 - 4.0	3.5	3.5
B	65 - 91	78	79	3.0 - 3.8	3.5	3.5
C	77 - 84	81	80	3.2 - 3.8	3.5	3.5
D	72 - 89	80	79	2.2 - 4.0	3.4	3.4
E	70 - 86	80	79	2.8 - 4.0	3.5	3.5
F	68 - 86	77	77	3.0 - 4.0	3.4	3.3
G	69 - 89	78	78	3.0 - 4.0	3.5	3.2
MATHEMATICS						
A	74 - 88	82	81	2.0 - 3.0	2.5	2.5
B	67 - 96	82	79	1.8 - 3.6	2.3	2.5
C	80 - 87	85	84	2.3 - 2.8	2.5	2.6
D	72 - 91	83	83	2.0 - 3.4	2.5	2.5
E	62 - 96	81	80	2.2 - 3.9	2.6	2.6
F	70 - 96	81	80	2.0 - 3.2	2.6	2.5
G	70 - 86	77	78	1.0 - 4.2	2.4	2.5
FOREIGN LANGUAGES						
A	76 - 90	84	84	2.0 - 3.2	2.7	2.6
B	82 - 94	86	86	2.0 - 3.9	2.5	2.7
C	80 - 90	85	85	2.2 - 3.2	2.6	2.7
D	76 - 93	84	84	1.7 - 3.1	2.4	2.4
E	71 - 96	85	85	2.0 - 4.0	2.5	2.5
F	71 - 96	85	84	2.0 - 4.0	2.2	2.5
G	63 - 96	85	83	2.0 - 3.0	2.6	2.3
HISTORY AND SOCIAL STUDIES						
A	72 - 87	78	79	2.2 - 3.3	2.7	2.7
B	73 - 90	80	80	2.5 - 3.3	2.9	2.9
C	74 - 83	81	82	2.3 - 3.3	2.8	2.9
D	70 - 88	82	81	1.9 - 3.4	2.9	2.9
E	68 - 87	80	79	2.0 - 4.0	2.9	2.8
F	69 - 92	79	79	2.3 - 4.0	2.7	2.8
G	66 - 90	77	78	2.2 - 3.3	2.8	2.8
SCIENCE						
A	72 - 87	89	80	2.0 - 3.0	2.2	2.3
B	76 - 92	83	81	2.1 - 2.6	2.2	2.3
C	68 - 85	82	81	2.2 - 2.5	2.4	2.3
D	72 - 90	81	81	2.0 - 2.5	2.2	2.2
E	68 - 87	81	80	2.0 - 3.0	2.3	2.3
F	70 - 86	77	78	2.0 - 2.7	2.2	2.2
G	68 - 72	77	78	2.0 - 3.0	2.2	2.2
MISCELLANEOUS SUBJECTS						
A	63 - 92	79	79	1.4 - 4.0	3.1	3.1
B	74 - 86	80	80	2.3 - 4.0	2.8	2.9
C	75 - 87	81	80	2.8 - 3.2	3.0	3.0
D	72 - 86	80	79	2.2 - 3.7	3.0	3.0
E	58 - 76	66	77	2.0 - 3.8	2.9	3.0
F	64 - 84	76	77	2.0 - 4.4	3.0	2.8
G	68 - 86	76	77	2.0 - 5.4	3.0	4.2

slightly higher high school grades in almost all of their high school courses. There was, however, no evidence that these differences were related to any single high school course.

Perhaps the outstanding finding of the third part of the study was the extent of rigidity of high school preparation in terms of both credits and grades. The group uniformly exhibited no significant variations between individuals within a school nor between schools within a group. Perhaps the pupils for whom curricular and grading variations are made do not get to the University, or perhaps whatever provisions are made for individual differences in high school are made within a class rather than within subject-matter areas. Whatever the reason, the facts indicated very little named curricular adaptation of subjects or grades to the individual differences exhibited in terms of entrance tests and college grades.

SUMMARY

The detailed institutional findings presented in the extended table in the Appendix can be consulted by the high school administrator who wishes to compare his school with similar schools in the state. The smaller tables, Tables I to VIII in the report of the study, were prepared in order to facilitate interpretation of the findings of the extended table.

In Tables I to VIII it is indicated that University freshmen were a typical sample of high school graduates in terms of their rank in the graduating class. Evidence on college grades and high school rank suggested that certain high schools prepared their young people more adequately than did others. The relationship was discussed in detail.

The educational attainment of the parents of Indiana University students was three school grades above that of the general Indiana population.

Entrance examinations indicated that the best schools had median scores in certain instances four to six times larger than those of the poorest schools. The variation between schools was about three fourths as large as that between individuals within a school.

Grades and credits in the various high school courses indicated a high degree of rigidity of the pattern presented for University entrance. The high schools have either paid little attention to local and individual pupil variations or courses that have been described by the same title cover an extremely wide area of content and activity in the different schools.

APPENDIX

Table A gives a detailed summary of the data covered by this study, for each of the 153 high schools sending 10 or more students to Indiana University during 1946-1947. It was included in order to give high school administrators and University counselors an opportunity to see how the various schools performed in relation to one another. If he wishes, a high school principal or other administrative officer may obtain the code number of his own school by writing to the Division of Research and Field Services at Indiana University.

In this table the 153 high schools are grouped into categories A to G, depending upon the size of the community in which they were located. Group O includes summary data for all the 560 high schools which sent fewer than 10 students to Indiana University during 1946-1947.

College CPR (credit point ratio) is expressed in terms of the system used at Indiana University where an A equals three honor points, a B equals two, a C equals one, a D equals zero, and an F equals a minus one honor point.

High school rank is expressed in terms of ordinal data, with a score of unity representing the highest person in the class. A student's relative standing in the group decreases as his rank approaches 100. To change an entry in the table to the customary percentile rank, simply subtract the given value from 100.

Father's and mother's education are interpreted by means of the following code:

0=completed 3-4 years graduate work in college
1=completed 1-2 years graduate work in college
2=completed college degree
3=completed 3-4 years college
4=completed 1-2 years college
5=completed grades 11-12 in high school
6=completed grades 9-10 in high school
7=completed grades 7-8 in elementary school
8=completed grades 5-6 in elementary school
9=completed grades 3-4 in elementary school

The entrance test results are given in terms of percentile ranks and were derived by the University Bureau of Measurement from the norms available in their office.

The last section of the table presents both credit point ratio and number of credits earned in five high school academic areas—English, mathematics, foreign language, history and social studies, and science. The sixth group, miscellaneous high school work, includes courses such as home economics, shop, music, etc. Credits can be interpreted directly. Table B, however, should be used in interpreting the coded high school grade.

TABLE A. VARIATIONS AMONG HIGH SCHOOLS REPRESENTED AT INDIANA UNIVERSITY IN TERMS OF INSTITUTIONAL MEANS ON THE VARIOUS MEASURES

Code Number	Number of Students	Average College GPR	High School Rank	Father's Education	Mother's Education	Entrance Tests: Cooperative English Test Cl — V	S	L	T	Entrance Tests: California Mental Maturity Test — NL	L	T	High School Courses: English — GPR	Gr.	Mathematics — GPR	Gr.	Foreign Languages — GPR	Gr.	History and Social Studies — GPR	Gr.	Science — GPR	Gr.	Miscellaneous — HPE	Gr.
GROUP A, 100,000 AND OVER																								
1-	48	1.10	83	4.7	5.1	35	40	40	36	53	62	59	1.3	3.5	1.4	2.8	0.9	2.5	1.2	2.6	2.2	2.1	3.3	1.4
7-	234	1.16	30	4.2	4.9	61	55	62	59	68	73	74	2.4	3.3	2.0	2.6	1.4	2.7	2.2	2.3	2.1	2.0	2.4	3.1
-5	78	1.40	43	3.7	3.9	50	48	48	49	68	75	76	1.9	3.5	2.1	2.5	1.9	2.5	2.2	2.4	2.2	2.2	2.4	2.8
-0	36	1.39	51	3.5	4.8	52	44	53	49	64	76	75	1.4	3.8	1.6	2.6	1.4	2.3	1.8	2.7	1.2	2.0	1.4	2.2
01	11	1.30	60	3.3	4.7	46	49	47	52	76	75	83	1.4	3.3	1.1	3.0	1.5	2.7	1.9	2.3	1.3	2.3	2.0	2.7
03	50	1.30	29	4.7	4.8	53	51	49	50	61	73	70	2.0	3.6	1.7	2.6	1.2	2.9	1.9	2.9	1.6	2.0	1.8	3.1
06	150	0.89	52	4.7	4.9	48	44	48	46	54	69	65	0.4	3.5	1.1	2.5	1.1	2.8	1.2	2.8	1.3	2.2	1.6	3.1
16	46	0.69	40	5.6	5.9	42	29	33	33	36	41	46	1.9	3.3	1.4	2.0	1.9	2.7	2.0	3.3	1.6	2.0	1.7	2.6
19	27	0.73	46	5.0	5.6	42	51	55	48	59	63	63	1.3	3.2	1.3	2.8	0.7	2.6	1.4	2.5	1.1	2.4	1.7	3.1
28	58	1.00	49	5.7	5.9	52	50	52	52	56	66	64	1.1	3.2	1.0	2.3	0.6	2.6	0.9	3.0	1.6	2.2	1.6	3.9
29	47	1.49	40	6.1	6.0	58	51	57	54	39	78	68	2.3	3.7	2.2	2.6	1.5	3.2	2.4	2.8	2.0	2.1	2.4	2.9
34	46	1.36	35	6.6	7.0	40	32	37	36	38	47	45	1.7	3.0	1.5	2.4	1.0	2.7	1.4	2.5	1.8	2.2	1.6	3.7
45	92	1.18	43	3.9	5.0	55	55	57	57	68	78	77	2.2	3.4	2.1	2.6	1.6	2.9	1.4	2.5	1.8	2.2	1.6	3.1
47	113	1.15	52	5.0	5.3	57	55	58	56	56	72	67	1.4	3.5	1.4	2.5	0.7	2.5	1.4	2.9	1.4	2.1	0.8	3.1
81	87	1.10	41	5.7	5.1	54	45	57	51	61	73	74	1.5	3.7	1.4	2.4	1.1	2.8	1.9	2.8	1.7	2.5	1.2	2.7
96	76	1.04	45	4.7	4.8	52	47	49	47	65	68	69	1.7	3.3	1.4	2.5	1.2	2.3	1.5	2.7	1.1	2.1	1.7	3.2
98	25	0.56	29	5.0	5.0	22	19	20	19	24	46	38	1.8	3.5	1.3	2.2	1.5	2.1	1.6	2.8	1.5	2.1	1.9	3.7
x8	404	1.14	52	4.0	4.5	53	51	51	52	62	73	72	2.0	3.6	1.8	2.5	1.5	2.6	1.8	3.1	1.7	2.3	1.8	2.8
x9	146	1.01	50	3.5	4.7	52	48	56	52	58	65	63	2.0	3.6	1.6	2.5	1.2	2.7	1.8	2.8	2.2	2.2	1.4	3.1
y9	14	1.04	50	6.0	6.2	56	58	52	56	76	58	65	1.9	3.3	0.8	2.2	1.1	2.5	1.2	2.7	1.9	2.3	1.8	4.0
2y	59	1.33	45	5.4	5.4	56	46	44	46	61	68	68	1.0	3.4	0.8	2.4	0.6	2.8	1.0	3.1	1.0	2.3	0.9	3.5
3x	10	0.90	40	2.0	2.0	79	82	68	75	88	85	89	3.0	4.0	2.0	3.0	2.0	2.0	2.0	3.0	2.0	3.0	2.0	3.0
3x	48	0.78	46	5.6	5.6	49	44	50	46	54	61	59	2.2	3.4	1.9	2.4	1.5	3.0	2.1	2.5	2.0	2.3	2.3	2.9
3y	25	0.83	48	5.0	5.0	55	39	44	46	56	67	63	1.5	3.0	1.5	2.4	0.7	2.8	1.3	2.8	1.8	2.3	1.6	2.9
4x	11	1.22	62	3.5	4.2	44	43	41	42	59	63	62	2.0	4.0	1.1	2.5	1.1	3.2	1.3	2.2	0.9	2.8	0.4	3.7
GROUP B, 80,000 TO 100,000																								
-7	101	0.99	48	5.0	5.1	58	50	53	53	67	69	69	2.1	3.4	1.4	3.6	0.9	3.9	2.0	2.5	2.0	2.2	2.2	3.1
-8	11	0.99	46	5.9	4.5	57	54	61	59	70	72	73	1.3	3.8	1.4	2.3	1.0	2.4	1.3	2.9	1.3	2.2	1.3	2.8
07	43	1.64	45	5.8	6.0	47	42	46	43	74	72	76	2.2	3.4	2.9	1.8	1.4	2.7	2.3	3.3	2.0	2.1	2.1	3.1
07	37	1.48	32	4.8	4.7	69	59	68	65	71	86	86	1.8	3.5	2.0	2.5	0.9	2.4	1.8	3.3	1.3	2.4	1.6	2.8
38	40	1.00	39	4.1	5.4	51	53	61	52	76	72	77	1.1	3.4	0.7	2.8	0.8	2.5	1.1	2.8	1.1	2.2	1.5	2.4
43	118	1.34	49	5.3	4.8	53	52	52	53	63	76	74	1.1	3.7	1.1	2.8	0.8	2.0	1.5	3.1	1.2	2.2	1.4	2.8
86	11	0.90	60	6.0	5.0	39	41	51	49	50	80	59	0.5	3.0	0.0	2.0	0.2	2.7	0.6	2.7	0.4	2.3	1.0	4.0
94	41	1.06	38	5.4	5.1	49	52	47	50	70	67	70	2.1	3.8	1.8	2.5	1.1	3.3	1.9	3.1	2.0	2.5	2.0	2.3
x1	73	1.06	50	5.3	5.5	53	42	47	47	62	68	67	3.1	3.4	1.9	2.3	1.0	2.7	2.0	2.9	1.8	2.4	1.7	2.6
x7	79	1.08	41	6.2	5.8	48	46	46	46	49	67	62	2.2	3.5	1.6	2.3	1.2	2.4	1.4	3.1	1.8	2.2	1.9	3.3
7x	84	1.08	54	4.9	4.4	48	45	48	47	76	82	78	1.4	3.6	1.2	2.9	1.1	2.4	1.3	2.7	1.2	2.6	1.0	2.3
GROUP C, 30,000 TO 50,000																								
4-	125	0.66	39	4.3	4.7	52	46	48	46	68	77	75	1.6	3.6	1.1	2.6	1.4	2.4	1.3	2.9	1.4	2.2	2.1	2.9
-9	29	1.67	41	4.5	4.7	53	56	60	56	58	72	70	1.9	3.5	1.6	2.4	1.6	3.0	2.2	2.3	1.4	2.4	1.7	2.8
04	77	0.99	43	3.5	4.7	52	46	52	51	54	63	61	1.2	3.6	1.2	2.8	0.8	2.6	1.4	3.3	1.4	2.4	1.4	2.8
23	87	1.26	41	5.2	5.7	49	45	46	46	67	71	69	1.3	3.5	0.9	2.7	0.8	2.7	1.3	2.8	1.1	2.4	1.4	3.2
24	48	1.06	40	4.5	5.0	57	48	54	52	46	69	62	1.3	3.2	0.9	2.5	0.6	2.8	1.6	3.2	1.8	2.2	0.9	3.1
96	43	1.68	35	4.5	5.1	67	75	77	76	84	84	82	1.9	3.8	1.6	2.3	1.2	3.2	1.8	2.8	2.0	2.5	1.9	3.2
GROUP D, 10,000 TO 30,000																								
x-	106	1.02	29	4.6	4.4	54	57	57	57	71	75	75	1.6	2.2	1.6	2.1	1.4	2.0	1.5	2.9	1.6	2.3	1.6	3.3
-6	345	0.72	45	5.9	5.4	42	40	41	40	52	60	57	0.7	3.2	1.0	2.4	0.8	2.8	1.3	2.7	1.2	2.3	1.5	3.2
10	59	0.91	40	4.9	5.9	43	42	41	41	56	62	58	1.7	3.6	1.8	2.8	1.4	2.4	2.0	3.0	1.4	2.2	1.8	3.2
12	48	0.83	52	5.4	5.1	51	45	48	47	62	78	68	1.5	3.3	1.5	2.5	1.1	2.4	1.5	2.9	0.9	2.5	1.6	3.0
15	43	1.07	47	4.6	4.7	50	40	46	43	60	65	66	2.4	3.4	1.4	3.1	1.2	3.1	1.1	3.2	1.7	2.2	2.4	3.4
26	56	0.87	48	4.6	5.0	49	48	48	48	68	68	71	1.2	3.5	1.2	2.4	0.4	2.7	1.2	2.8	0.6	2.3	1.0	3.2
27	25	0.92	48	5.2	5.2	54	36	42	42	56	66	57	1.3	3.4	0.8	2.2	0.8	2.2	1.4	2.9	1.5	2.4	1.2	3.3
31	44	1.23	38	5.1	5.2	60	58	58	58	69	78	80	1.1	3.6	1.9	2.9	1.5	2.2	1.2	3.0	1.8	2.4	1.8	2.8
37	64	1.33	50	4.3	4.6	63	58	59	60	66	74	70	2.4	3.6	1.0	2.6	1.7	2.8	2.6	2.8	2.1	2.4	1.3	2.6
47	60	1.45	46	4.8	4.8	58	40	47	46	64	72	72	1.8	3.4	1.3	2.4	1.1	2.4	1.7	2.7	1.5	2.3	1.7	3.4
48	36	0.77	39	5.5	5.1	38	29	35	32	48	60	58	2.0	3.7	1.5	2.5	1.5	2.5	2.0	3.1	2.0	2.4	2.0	2.5
57	38	0.80	50	5.3	5.3	55	55	56	56	64	70	72	1.7	3.2	1.2	2.0	0.3	3.0	1.4	3.0	1.6	2.0	1.9	3.2
68	60	1.04	46	3.1	5.3	43	36	43	41	65	80	80	1.5	3.2	1.0	2.3	0.5	3.0	1.1	2.9	1.3	2.2	1.4	3.2
88	70	1.22	46	5.4	4.4	55	42	49	49	64	73	70	1.4	3.7	1.2	2.5	0.9	2.6	1.4	2.7	1.4	2.2	1.3	3.2
98	73	1.10	61	4.3	4.7	63	58	59	59	69	80	79	2.0	3.5	2.4	2.6	1.4	2.6	1.8	3.4	1.7	2.1	1.5	3.0
78	70	1.33	46	6.0	5.4	53	45	47	47	65	68	64	2.1	3.4	1.8	2.2	1.9	1.7	1.7	3.1	2.4	2.1	1.7	2.7
79	100	1.08	51	4.4	5.0	45	46	44	45	56	71	67	1.6	3.6	1.0	2.3	1.0	2.6	2.1	2.5	1.1	2.1	1.8	2.9
87	55	1.23	43	5.2	5.3	58	52	50	53	70	74	75	2.2	3.5	1.7	2.5	1.6	1.7	1.7	3.0	1.9	2.1	1.7	3.3
97	36	0.75	52	5.2	5.3	58	52	56	55	66	77	76	1.7	3.2	0.5	2.7	1.2	2.7	1.4	2.8	1.7	2.5	1.4	2.7
x7	41	1.42	50	4.1	4.9	63	54	58	57	82	81	79	2.0	3.8	1.3	3.4	1.5	2.3	2.0	3.1	1.7	2.4	2.1	2.9
7x	15	1.04	41	5.4	6.0	63	55	65	60	71	75	76	1.5	4.0	0.9	2.5	0.9	2.0	1.4	3.1	0.7	2.0	1.5	2.2
97	160	1.00	56	4.2	4.3	68	61	63	64	82	83	82	1.8	3.2	1.4	2.4	1.3	2.2	1.6	2.5	1.4	2.2	1.9	2.9
17	43	0.98	50	5.0	4.3	68	35	36	46	49	74	68	1.0	3.3	1.0	2.3	1.2	2.3	1.0	3.0	1.4	2.2	1.3	3.0
97	96	1.17	36	7.2	7.5	78	43	54	56	82	79	77	2.3	3.7	1.8	2.3	2.0	2.3	0.8	3.0	1.8	2.2	2.1	3.7
GROUP E, 5,000 TO 10,000																								
9-	17	0.70	80	7.0	8.0	27	28	27	26	77	69	72	1.0	3.0	0.0	3.0	0.0	4.0	1.0	4.0	1.0	3.0	2.0	4.0
-8	88	0.82	50	5.1	5.8	54	52	60	56	68	69	66	1.4	3.6	1.2	2.5	0.9	2.8	1.6	2.6	1.2	2.3	1.4	3.4
17	31	1.17	39	4.8	5.8	58	55	57	56	68	71	70	1.7	3.6	1.7	2.5	1.3	2.6	1.8	2.8	1.5	2.5	1.8	2.8
47	15	0.98	44	4.0	4.7	64	66	65	66	69	72	71	1.8	3.2	1.5	2.7	1.5	2.2	1.6	2.5	1.7	2.3	1.5	2.7
68	18	1.44	50	6.9	7.1	37	28	32	26	59	54	56	1.4	3.3	1.4	2.3	0.8	3.6	1.3	2.9	1.1	2.0	1.5	3.4
80	27	1.37	39	5.3	5.9	54	46	44	47	60	70	67	1.4	3.8	1.0	2.3	2.2	2.0	1.5	2.5	1.2	2.3	1.5	3.1
21	10	0.72	--	--	--	36	41	49	40	55	61	60	1.7	3.7	1.0	2.7	1.1	2.3	1.8	2.8	1.6	2.3	1.7	3.0
32	24	0.48	32	6.2	5.8	49	41	40	40	34	45	41	1.8	3.2	0.9	2.8	0.5	3.2	1.4	3.2	1.6	2.2	1.2	3.4
60	22	1.38	45	5.3	5.8	61	60	61	61	51	65	59	2.0	3.5	1.9	2.7	1.3	2.0	1.8	3.0	2.0	2.2	2.3	2.3
44	22	1.00	46	4.1	4.2	49	46	46	46	62	67	66	2.0	3.5	1.9	2.8	1.6	2.8	2.2	2.9	2.1	2.5	2.2	2.6

TABLE A. Continued

Code Number	Number of Students	Average College GPR	High School Rank	Father's Education	Mother's Education	Entrance Tests: Cooperative English Test C1 V	S	L	T	Entrance Tests: California Mental Maturity Test HL	L	T	High School Courses: English GPR	English Cr.	Mathematics GPR	Mathematics Cr.	Foreign Languages GPR	Foreign Languages Cr.	History and Social Studies GPR	History and Social Studies Cr.	Science GPR	Science Cr.	Miscellaneous GPR	Miscellaneous Cr.
4s	26	1.15	60	4.5	5.8	53	37	32	39	55	60	75	1.9	3.5	1.7	2.7	1.4	2.5	2.1	2.7	1.9	2.4	2.2	2.8
5s	14	1.70	25	3.8	4.8	64	55	64	59	71	83	82	2.6	3.6	3.4	2.8	2.5	2.2	2.6	2.8	2.7	2.4	2.6	2.8
6s	36	1.19	49	5.3	5.4	54	45	50	49	64	68	71	1.5	3.1	1.5	2.4	1.2	2.2	1.4	2.6	1.6	2.3	1.9	3.3
61	25	0.69	42	5.8	5.3	44	45	51	46	53	64	61	1.3	3.3	1.7	2.6	0.7	2.9	2.8	3.0	1.6	2.1	1.9	3.4
6S	27	1.66	24	4.8	4.4	72	62	73	69	72	80	81	2.3	4.0	2.2	2.6	1.7	2.2	2.3	2.9	2.4	2.3	2.6	2.8
66	14	0.50	20	7.0	4.0	75	98	94	94	88	91	92	1.0	3.0	2.0	3.9	0.0	2.0	1.0	2.0	2.0	3.0	2.0	3.0
6g	30	0.89	50	5.5	4.9	43	36	39	37	66	68	66	1.1	3.2	1.0	2.7	0.7	2.6	1.1	2.4	1.1	2.3	1.5	3.2
7G	15	1.08	57	4.8	6.0	24	30	31	27	71	75	73	1.3	3.4	1.3	2.5	0.5	2.7	0.9	3.5	1.5	2.8	1.9	3.0
6G	20	1.30	31	5.5	4.1	47	55	49	49	73	61	65	2.4	3.9	2.4	2.4	0.8	3.0	2.2	2.5	2.4	2.9	2.2	3.3
90	29	0.82	55	5.1	5.2	35	26	24	26	54	55	53	1.1	3.4	1.0	2.2	0.2	3.2	1.4	2.8	1.0	2.2	1.4	3.7
91	22	1.74	43	3.9	4.8	68	49	44	46	55	70	65	1.3	3.3	1.5	2.7	0.4	3.2	1.8	2.8	1.7	2.3	1.2	3.5
9S	32	1.40	39	4.6	4.6	59	57	52	56	37	83	78	2.4	4.0	2.4	2.3	2.1	2.1	2.2	2.7	2.0	2.4	2.4	2.7
x3	34	1.50	46	4.2	4.8	56	57	58	56	69	78	79	2.1	3.9	2.0	3.1	1.9	2.6	2.3	3.0	2.4	2.1	2.4	2.3
x6	49	1.28	25	5.1	5.3	57	52	59	55	56	79	72	2.1	3.6	1.8	2.8	1.5	2.5	1.9	2.0	1.4	2.2	1.8	2.9
y6	24	0.96	41	5.0	5.8	50	48	56	50	59	76	72	2.0	3.7	1.6	2.6	1.2	2.1	1.9	3.6	1.7	2.6	1.8	2.9
y7	23	1.47	50	5.1	5.9	49	40	43	42	68	75	74	1.0	2.8	1.4	2.5	1.0	2.5	1.5	2.8	1.1	2.0	2.0	3.8
y8	38	1.33	26	5.0	4.4	56	50	53	52	60	78	73	2.6	3.6	2.2	2.8	1.7	2.0	2.4	3.0	1.3	2.1	2.0	2.6
1x	23	1.84	39	5.0	4.8	46	33	39	38	57	67	64	2.1	3.1	1.0	2.4	0.8	2.3	1.2	2.9	1.3	2.0	1.8	3.0
2x	27	0.63	50	4.0	4.0	55	54	51	55	66	76	76	2.2	4.0	1.8	2.2	1.1	3.5	1.7	3.0	1.4	2.2	2.0	3.5
3y	28	0.76	57	4.8	4.6	62	30	39	41	61	69	68	1.5	3.7	1.5	2.6	1.7	2.0	1.4	2.8	1.1	2.1	1.8	3.1
4x	37	1.17	54	5.6	4.9	36	38	38	38	66	61	56	1.5	3.2	1.2	2.6	1.2	3.3	1.6	3.1	1.5	2.3	1.5	2.7
6x	27	1.02	68	2.2	4.2	72	56	60	61	79	81	87	1.5	4.0	1.5	2.5	1.1	2.5	1.5	3.3	1.5	2.2	1.5	2.5
7y	16	0.63	57	5.9	5.1	49	50	60	51	75	80	79	1.8	3.5	1.5	2.6	0.7	3.1	1.6	3.0	1.5	2.6	1.9	3.3
GROUP F, 2,500 TO 5,000																								
3-	16	0.50	90	7.0	6.0	46	29	32	32	70	73	74	1.0	3.0	0.0	2.1	1.1	2.0	1.0	3.0	1.0	2.0	--	--
6-	23	0.37	54	6.2	6.2	23	27	40	26	36	77	56	1.0	3.0	1.3	2.8	0.5	3.0	1.1	2.7	1.5	2.8	2.3	3.8
0-	23	1.00	60	4.0	4.0	53	69	72	64	77	77	79	1.0	3.0	1.0	3.0	0.0	4.0	1.0	4.0	1.0	2.0	2.0	2.0
y-	13	0.90	50	5.0	4.0	39	37	38	36	33	60	50	2.0	4.0	2.0	3.0	1.0	2.0	2.0	4.0	2.0	2.0	2.0	2.0
-8	21	1.12	26	4.8	4.7	45	41	42	41	57	62	60	1.9	3.6	1.5	2.4	0.7	3.5	2.1	2.6	2.2	2.2	2.1	3.5
09	27	0.72	39	3.4	4.0	56	44	50	49	51	59	55	1.8	3.1	1.9	3.1	1.7	2.2	1.8	2.9	2.1	2.2	2.0	2.8
17	26	0.85	38	5.2	4.8	60	50	55	54	51	61	77	1.8	3.4	1.5	2.6	0.4	2.8	1.4	2.8	1.8	2.3	1.7	3.1
36	17	1.24	52	5.9	6.0	52	46	38	45	59	72	67	1.9	4.0	1.3	2.0	1.4	2.2	1.6	3.0	1.8	2.5	1.5	2.8
38	18	0.68	46	4.9	5.1	53	61	55	56	49	62	58	1.9	3.9	1.3	2.1	0.9	3.5	1.5	2.4	1.9	2.0	2.1	3.3
39	15	1.32	30	4.4	4.8	75	53	59	65	67	90	93	2.8	3.6	2.6	3.2	2.5	2.2	2.7	2.4	2.2	2.4	2.5	3.0
46	23	1.40	32	3.8	4.0	55	40	44	43	55	75	67	1.7	3.3	1.2	2.1	0.7	2.8	1.8	2.3	2.0	2.7	1.5	4.4
73	11	+0.10	50	7.8	6.0	28	33	35	29	42	56	48	1.4	3.3	1.0	2.0	0.2	3.3	0.4	2.6	2.3	2.0	1.2	2.7
74	15	1.13	47	5.7	5.3	53	34	43	39	55	69	67	2.2	3.8	1.2	2.4	2.0	2.0	1.7	2.9	1.3	2.4	1.6	2.6
82	12	1.27	43	3.5	4.0	57	64	65	60	72	71	72	1.9	3.3	2.1	3.0	1.7	2.0	1.8	2.7	1.3	2.0	2.4	2.3
83	20	1.52	31	5.1	4.6	50	52	59	55	48	78	69	2.0	3.3	1.8	2.9	1.7	2.0	1.7	3.0	2.6	2.0	1.8	3.1
88	10	1.50	55	4.5	5.5	60	52	54	53	49	60	55	2.5	4.0	2.0	3.0	2.5	2.0	2.0	2.5	2.5	2.4	2.5	2.5
93	22	1.00	50	2.8	4.6	62	62	59	60	45	75	68	2.7	3.2	1.6	2.7	1.6	2.1	1.8	2.9	1.7	2.4	1.9	3.4
97	13	1.57	22	4.5	4.2	60	48	55	54	61	93	84	2.5	3.2	2.0	2.8	2.2	2.8	2.5	2.5	2.5	2.0	2.6	2.5
x4	35	1.10	46	5.7	5.4	60	50	56	54	58	75	70	2.3	3.8	2.0	2.4	1.8	2.2	2.6	2.8	2.0	2.5	3.2	2.0
y1	27	0.06	46	4.7	5.4	48	39	31	36	49	68	63	1.4	3.4	1.4	2.3	0.8	2.4	1.4	2.5	1.8	2.3	2.1	3.2
0x	14	1.70	42	3.4	4.8	57	39	47	45	59	72	70	1.0	3.4	1.2	2.4	1.0	2.6	1.6	3.2	1.5	2.2	1.6	3.2
GROUP G, UNDER 2,500																								
2-	10	0.90	50	2.0	5.0	15	56	22	36	23	28	20	1.0	3.0	1.0	3.0	0.0	2.0	1.0	3.0	1.0	2.0	1.0	4.0
-1	11	1.22	51	4.8	4.9	57	57	60	58	61	79	76	1.4	3.5	1.3	2.5	0.9	2.3	1.3	2.7	1.7	2.5	1.7	3.0
-3	14	0.91	48	5.5	7.4	56	58	59	58	47	66	66	1.8	3.3	1.2	1.0	1.4	2.6	2.0	2.8	1.7	2.4	1.7	3.7
06	17	1.37	40	3.5	4.0	55	59	62	60	71	72	74	1.8	3.2	1.9	2.5	1.7	3.0	1.8	2.8	1.8	2.8	2.3	2.8
13	28	1.36	39	4.2	5.5	44	48	48	47	72	67	70	1.7	3.2	1.6	2.2	1.1	2.6	1.9	2.8	1.8	2.4	1.0	3.4
14	15	1.11	44	4.9	4.9	46	42	49	43	75	64	69	1.4	3.5	1.5	2.2	0.7	3.0	1.1	3.0	1.4	2.2	1.4	3.6
19	19	1.12	69	4.5	5.0	52	48	53	50	72	74	79	1.3	3.7	1.0	2.9	0.8	2.9	1.1	2.6	0.9	2.2	1.1	2.4
22	17	0.25	40	4.8	5.2	37	51	53	50	59	58	56	1.8	3.4	1.2	4.2	1.7	2.2	1.5	3.0	1.5	2.8	1.6	3.2
24	14	0.77	34	5.9	4.8	27	37	39	34	50	65	62	1.4	3.4	1.4	2.3	0.4	3.0	1.3	2.8	1.6	2.0	1.5	3.9
25	14	1.35	45	5.0	6.5	60	57	65	62	86	76	84	2.0	4.0	2.5	2.0	1.0	3.0	2.0	3.0	2.0	2.0	2.0	3.0
30	16	0.53	43	4.0	5.7	29	31	29	28	50	72	66	1.7	3.0	1.8	2.7	3.3	2.7	0.6	2.7	1.5	2.7	2.3	4.0
33	12	1.25	35	6.2	5.2	17	46	44	34	59	66	64	2.0	3.8	2.2	2.2	1.0	2.5	2.3	3.0	1.7	2.2	2.3	3.5
41	12	0.35	45	4.0	5.0	33	42	45	40	70	63	65	2.2	3.5	2.2	2.2	1.5	2.0	1.7	2.8	2.1	2.2	2.1	3.8
42	12	0.83	60	6.0	5.5	65	61	62	66	52	65	62	1.7	3.5	1.9	2.5	0.3	3.0	1.8	2.8	1.9	2.2	2.3	3.8
51	10	1.10	35	5.5	5.5	27	27	26	25	62	60	68	0.7	3.0	2.4	2.5	1.0	3.0	2.5	3.0	1.5	2.0	1.2	4.0
52	10	0.82	35	3.5	5.5	47	29	25	30	48	52	49	2.5	3.8	2.2	3.2	2.8	2.2	2.4	2.2	2.8	2.2	2.0	2.0
53	13	1.20	32	5.0	4.2	61	33	33	41	53	73	69	2.1	3.8	2.0	3.4	1.0	2.8	1.6	3.0	1.9	2.4	2.3	3.6
54	11	1.45	27	5.2	6.2	67	54	50	55	63	67	61	1.8	4.0	1.8	2.5	0.4	2.7	2.3	3.2	1.7	2.0	1.9	3.5
59	21	1.04	38	4.7	4.8	50	50	54	51	66	76	75	1.5	3.0	1.2	2.2	1.1	2.6	1.8	2.8	1.5	2.2	1.9	2.8
63	16	1.20	28	5.5	5.0	61	55	64	61	47	83	75	2.2	3.8	2.0	2.1	2.2	2.0	2.3	2.7	2.2	2.0	2.6	3.0
64	11	0.95	47	2.6	3.3	64	58	60	62	46	76	70	1.8	3.5	1.2	2.3	0.9	2.3	1.3	2.6	1.1	2.4	1.6	3.0
70	11	0.96	45	4.5	4.5	48	45	48	47	76	63	72	2.0	4.0	1.6	2.5	0.3	3.0	1.5	3.0	1.6	2.5	1.5	3.0
71	11	0.98	13	4.6	3.8	73	78	67	73	59	90	88	2.3	3.3	2.6	3.3	1.0	2.0	2.4	3.3	2.3	2.0	1.0	2.7
75	12	1.27	30	2.7	4.3	62	54	57	54	67	84	83	2.7	4.0	2.2	2.3	2.3	2.0	3.0	3.0	2.7	3.0	2.8	3.0
77	13	1.36	20	5.2	4.3	67	63	71	65	63	75	73	2.2	3.2	2.6	2.2	2.8	2.0	2.7	3.0	2.2	2.0	2.3	2.8
84	10	1.09	29	4.6	5.1	54	43	41	53	67	76	75	2.2	3.7	1.8	2.6	2.0	2.4	2.0	2.8	1.3	2.4	2.2	2.9
85	22	1.09	29	5.4	4.3	51	63	62	60	64	76	73	2.6	3.2	2.2	2.0	2.1	2.6	2.4	2.4	2.7	2.4	2.8	3.0
89	13	1.03	43	4.8	4.6	64	57	53	57	48	78	73	2.1	3.7	1.4	2.3	1.5	2.0	1.6	2.8	1.9	2.3	2.1	3.2
98	10	1.55	30	6.0	4.0	58	44	48	47	60	70	70	2.0	4.0	1.8	3.0	2.5	2.0	2.0	2.7	2.1	2.5	2.3	3.5
99	22	1.51	40	5.6	5.0	58	40	49	50	46	76	71	1.5	3.5	1.5	2.1	1.5	2.1	1.4	2.9	1.8	2.0	1.3	2.9
x0	10	0.70	20	6.0	5.0	73	43	57	58	29	82	67	2.0	3.5	2.0	2.5	1.5	2.0	2.0	2.0	1.5	2.0	2.0	4.0
x5	12	0.80	70	6.0	6.0	26	20	15	19	51	52	50	1.6	3.7	2.1	3.0	1.7	2.0	1.9	3.0	1.7	2.0	2.3	2.0
y0	20	1.13	48	7.0	7.5	58	54	57	57	62	78	73	1.8	3.2	2.0	2.5	0.5	3.0	2.0	4.0	2.0	2.0	2.1	3.5
y3	11	1.62	22	6.0	4.4	45	35	39	38	48	67	63	1.6	4.0	1.3	2.4	1.5	2.0	1.6	2.4	1.5	2.2	2.3	3.4
7x	48	0.93	43	5.5	5.2	56	45	52	51	56	76	72	1.8	3.5	1.5	2.7	1.5	2.0	1.9	2.9	1.5	2.1	1.8	3.0
GROUP 0, OTHERS																								
6x	1965	1.17	37	4.8	5.0	57	52	55	54	60	77	74	1.9	3.7	1.7	2.5	1.6	2.7	2.0	2.8	1.7	2.3	2.3	3.0

TABLE B. TABLE FOR INTERPRETING CODED HIGH SCHOOL GRADES*

Fractions in Coded Grades	Whole Numbers in Coded Grades			
	0	1.0	2.0	3.0
0.0	96	86	76	66
0.1	95	85	75	65
0.2	94	84	74	64
0.3	93	83	73	63
0.4	92	82	72	62
0.5	91	81	71	61
0.6	90	80	70	60
0.7	89	79	69	59
0.8	88	78	68	58
0.9	87	77	67	57

* To find the high school grade corresponding to a coded value of 1.6, enter column 1.0 and read down to line 0.6; the value entered there is 80.

Bulletins in the Field of Education, Indiana University

The Bulletin of the School of Education, Indiana University, was first published in 1924 and has appeared regularly since that time. Research studies of interest to educators, proceedings of conferences held, and bibliographies of educational materials have been the principal fields touched upon in these bulletins. A complete list of the bulletins may be obtained from the School of Education upon request. The studies included in the present volume and in the two volumes immediately preceding it in date are listed below. Unless otherwise noted, these may be obtained for 50 cents each from the Indiana University Bookstore, Bloomington, Indiana.

Analysis of the Proficiency in Silent Reading of 11,424 Sophomore Pupils in 243 High Schools in Indiana. By Henry Lester Smith and Merrill T. Eaton. Vol. XXII, No. 1, 1946. 51 p.

Analysis of the Spelling Proficiency of 82,833 Pupils in Grades 2 to 8 in 3,547 Teaching Units of the City Schools of Indiana. By William H. Fox and Merrill T. Eaton. Vol. XXII, No. 2, 1946. 50 p.

Analytic Study of the Student Personnel of the School of Education, Indiana University, 1931-1942. By Henry Lester Smith and Oscar P. Rausch. Vol. XXII, No. 3, 1946. 31 p.

School Building Planning and Related Problems: Proceedings. Vol. XXII, No. 4, 1946. 83 p.

One Hundred Fifty Years of Grammar Textbooks. By Henry Lester Smith, Kathleen Dugdale, Beulah Faris Steele, and Robert Stewart McElhinney. Vol. XXII, Nos. 5 and 6, 1946. 199 p.

Spelling Proficiency in Township Schools in Indiana. By William H. Fox. Vol. XXIII, No. 1, 1947. 32 p.

The Language and Mental Development of Children. By Ruth G. Strickland. Vol. XXIII, No. 2, 1947. 31 p.

Testing Services Offered by the Division of Research and Field Services. By William H. Fox. Vol. XXIII, No. 3, 1947. 31 p.

Suggested Procedures for Securing Economical and Efficient Pupil Transportation. By Maurice E. Stapley. Vol. XXIII, No. 4, 1947. 22 p.

Planning School Buildings for Tomorrow's Educational Program: Proceedings. Vol. XXIII, No. 5, 1947. 61 p. $1.

Studies in Secondary Education. By Carl G. F. Franzén, Elvin S. Eyster, Nicholas A. Fattu, A. Pryce Noe, and Frank L. Templeton. Vol. XXIII, No. 6, 1947. 49 p.

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An Analysis of Various Factors Associated with the Selection of Teaching as a Vocation. By Robert W. Richey and William H. Fox. Vol. XXIV, No. 3, 1948. 59 p.

Some Variations Among the High Schools Represented at Indiana University. By Nicholas A. Fattu. Vol. XXIV, No. 4, 1948. 25 p.